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FORMULATION AND EVALUATION OF ELIXIR FROM TINOSPORA CORDIFOLIA

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Abstract:
In addition to its numerous health benefits, the Indian Ayurvedic medical system uses the medicinal herb Tinospora cordifolia. An attempt has been performed to formulate and assess an elixir for oral use in the current study. For fever, the filtrate from the steam formulation of Tinospora Cordifolia may be helpful. Studies on the compatibility of extracts and excipients will be useful in formulating the best possible solution. The standardization of the solid oral dosage form of tablet has been explored for various improved formulation parameters and preformulations to increase the tablet's therapeutic efficacy. This shrub has several chemical constituents, including phenolic, aliphatic, steroid, lactone, glycoside, and polysaccharide compounds. Antidiabetic, anti-inflammatory, anti-cancer, anti-AIDS, antiallergic, antioxidant, anti-stress, anti-spasmodic, anti-arthritic, anti-leprotic, anti-malarial, hepatoprotective, and immunomodulatory activity are some of the noteworthy therapeutic qualities.

Keywords: Tinospora cordifolia, Elixir, Antidiabetic, anti-inflammatory, anti-cancer.

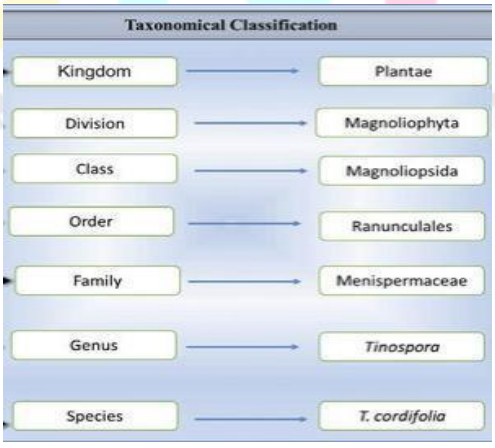
Introduction

The World Health Organization (WHO) estimated that Upto 80% of people still relay mainly on traditional remedies such as medicinal plants for their medicines. Since the beginning of human civilization, plants have been used as natural medicines. Recently, scientists are Showing a great interest in the development of new drugs from traditional medicinal plants .India with its vast bio-diversity and huge knowledge of ancient traditional systems of medicine Such as Ayurveda, Siddha, Unani, Amchi and provide a strong base for the utilization of a large Number of plants in general healthcare and common ailments of the people .Tinospora cordifolia commonly named as “Guduchi” in Sanskrit belonging to family Menispermaceae is a genetically diverse, large, deciduous climbing shrub with greenish yellow typical flowers, found at higher altitude In racemes or racemase panicles, the male flowers are clustered and female are solitary. The flowering season expands over summers and winters.Alkaloids,

steroids, diterpenoid lactones, aliphatics, and glycosides have all been isolated from various portions of the plant, including the root, stem, and complete plant. It is found throughout the tropical Indian subcontinent and China, up to an altitude of 300 metres. In Hindi the plant is commonly known as Giloy or Amrita which is a HinduMythological term that refers to the heavenly elixir that have saved celestial beings from old age and kept them externally young. The stem of Tinospora cordifolia are rather succulent with long filliform fleshy aerial roots from the branches. The bark is creamy white to grey, deeply left spirally, the space in between being spotted with large rosette like lenticel. The leaves are membranous and cordate. The flowers are small and yellow or greenish Yellow. In auxiliary and terminal racemes or racemose Panicles, the male flowers are clustered and female are usually solitary. The drupes are ovoid, glossy, succulent, Red and pea-sized. The seeds are curved and pea-sized. Fruits are pea-shaped, fleshy, shiny turn red when boiled.Recently, the plant is of great interest to researchers across the globe because of its reported medicinal properties like antidiabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritic, antioxidant, anti-allergic, anti-stress, anti-leprotic, anti-malarial, hepatoprotective, immunomodulatory and anti-neoplastic activities. In this review, we focus our attention to: (i) the reported genetic diversity in the Plant (ii) biological roles reported in humans and animals and active components from the plant. (iii) biological roles reported in humans and animals.

Fig.1Tinospora cordifolia

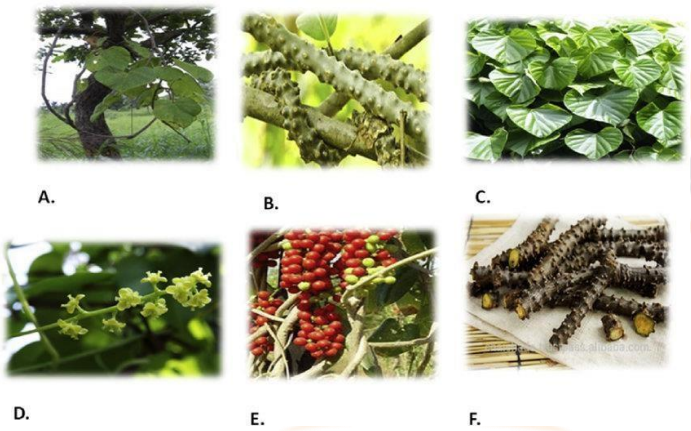
Taxonomical classification of Tinospora cordifollia:-



Vernacular names of Tinospora cordifollia:

Sanskrit	Guduchi, amrita, somavalli
Malayalam	Chittamruthu
Kannada	Amrutha balli
Hindi	Gurcha, giloe, gulancha
Marathi	Gula –vel
Bengali	Gulancha
Tamil	Seendal
Gujarati	Galo
Telugu	Teppatige
Urdu	Gilo
Kashmiri	Amrita, Gilo
Asamese	Siddhilata, Amarlata

Plant description:



Root

Roots are aerial, thread like, long filiform, threadlike, squairsh, which arise from the mature Branches or cut bits of stems grow downward and by continuouslylengthening sometimes Reach the ground . Microscopic observations of aerialroots are characterized by tetra to Penta-arch primary structure. However, cortex of root is divided in to outer thick walled and Inner parenchymatous zone. Thedried aerial roots are light grey –brown or creamy white In colour, odourless and bitter taste. Starch is present throughout the parenchyma of the aerial Root.

Stem

Stem of this plant is rather succulent with long, filiform, fleshy and climbing in nature. Aerial Roots arise from the branches. Dried stem is cylindrical, slender, slightly twisted in shape. Outer bark is thin and papery which is brown to greyish in colour. The stem when sectioned transversely shows a wheel like structure. Lenticels are circular and prominent. The stem Powder is creamish brown to dark brown in colour with characteristic odour and bitter taste.The Stem is used in dyspepsia, fever and urinary diseases .The starch obtained from the stem Known as “Guduchi-satva” is highly nutritive and digestive and used for many diseases.

Leaves

Leaves of this plant are membranous, simple, alternate, with long petiole approximately 15cm Which is round, pulvinate, heart shaped, twisted partially and half way round. Leaves are seen in bulk intensely green in colour but over mature leaves are yellowish green To yellow colour. Leaves are bitter and have an indistinct odour. Lamina is ovatecordate, 10-20 cm long, 8-15cm broad .Leaves are rich in protein, calcium and phosphorus.

Flowers

Flowers are small and unisexual which are greenish yellow in colour. Male flowers are Clustered and female flowers exist in solitary. Sepals are six in two series of three each. Outer Ones are smaller than the inner sepals. Petals are also six, smaller than sepals, free and Membranous. Flowering is seen during summer (March to June) .

Fruit

Fruits are fleshy and single seeded which are aggregates of one to three. These are drupelets On thick stalk with a sub terminal style scars .The shape of the fruitis ovoid with smooth textureAnd Scarlet or orange red in colour .

Chemical constituents of Tinospora cordifolia

Active Component	Compound	Plant Part	Biological Activity (In Human being)	References
Alkaloids	Berberine, Choline, Tembetarine, Magnoflorine, Tinosporin, Palmetine, Isocolumbin, Aporphine alkaloids, Jatrorrhizine, Tetrahydropalmatine,	Stem, Root	Anti-viral infections, Anti-cancer, anti-diabetes, inflammation, Neurological, immunomodulatory, psychiatric conditions	(12-17)
Diterpenoid Lactones	Furanolactone, Clerodane derivatives [(5R,10R)-4R-8R-dihydroxy-2S-3R:15,16-diepoxy-cleroda-13 (16), 14-dieno-17,12S:18,1S-dilactone], Tinosporon, Tinosporides, Jateorine, Columbin	Whole Plant	Vasorelaxant: relaxes norepinephrine induced contractions, inhibits Ca++ influx, anti-inflammatory, anti-microbial, anti-hypertensive, anti-viral. Induce apoptosis in leukemia by activating caspase-3and bax, inhibits bcl-2.	(18-22)
Glycosides	18-norclerodane glucoside, Furanoid diterpene glucoside, Tinocordiside, Tinocordifolioside, Cordioside, Cordifolioside Syringin, Syringin-apiosylglycoside, Pregnane glycoside, Palmatosides, Cordifolioside A, B, C, D and E	Stem	Treats neurological disorders like ALS, Parkinsons, Dementia, motor and cognitive deficits and neuron loss in spine and hypothalamus, Immunomodulation, Inhibits NF-kBand act as nitric oxide scavenger to show anticancer activities.	(23-29)
Steroids	β–sitosterol, δ-sitosterol, 20 β-hydroxyecdysone, Ecdysterone, Makisterone A, Giloinsterol	Shoot	IgA neuropathy, glucocorticoid induced osteoporosis in early inflammatory arthritis, induce cell cycle arrest in G2/M phase and apoptosis through c-Myc suppression. Inhibits TNF-α, IL-1 β, IL-6 and COX-2.	(30-32)
Sesquiterpenoid	Tinocordifolin	Stem	Antiseptic	(33)
Aliphatic	Octacosanol,	Whole	Anti-nociceptive and anti-	(34-36)

Medicinal properties

In India Tinospora cordifolia is widely used in traditional ayurvedic medicine because of its Biological activities like anti- inflammatory, immunomodulatory, anti-Oxidant, anti-diabetic, anti- periodic, anti- spasmodic, anti-neoplastic activities, anti-stress, Anti-leprotic, anti-malarial,

Hepato-protective, anti-allergic and anti-arthritic activity and various other medicinal properties. Tinospora cordifolia use in various ailments fevers, asthma, Diabetes, dyspepsia, jaundice urinary problems, skin diseases and chronic diarrhoea and Dysentery. It also plays a key role in the treatment of heart diseases, leprosy, helmenthiasis and Rheumatoid arthritis.

Anti-Microbial Activity

The anti-bacterial activity of Tinospora Cordifolia extracts has been assayed against Escherichia Coli, Staphylococcus aureus, Klebsiella pneumoniae, Proteus vulgaris, Salmonella typhi, Shigella flexneri, Salmonella paratyphi, Salmonella typhimurium, Pseudomonas aeruginosa,

Enterobacter aerogene, And Serratia marcesenses (Gram-positive bacteria) .Aqueous, ethanol and acetone extracts of leaves and Stem of Tinospora cordifolia Hook. F. Thoms showed Maximum inhibitory activity against on clinical isolates Of urinary pathogens Klebsiella pneumoniae and Pseudomonas aeruginosa . Silver nanoparticles Synthesized from stem of Tinospora cordifolia possess Very good antibacterial activity against multidrugresistant strains of Pseudomonas aeruginosa isolated From burn patients .The active compound [(5R, 10R)-4R, 8R-Dihydroxy-2S, 3R:15, 16- diepoxycleroda13(16), 17, 12S, 18, 1S-dilactone] was isolated from Ethanol extract of Tinospora cordifolia stem showed Activity against bacteria and fungi. The lowest MIC Values were observed against Enterococcus faecalis (125 µg/ml) and Bacillus subtilis (200 µg/ml). The Compound also showed activity against fungi; the Lowest minimum inhibitory concentration values were Seen against Trichophyton simii (31.25 µg/ml), Trichophyton rubrum 57 (62.5 µg/ml), Trichophyton Rubrum 296 (62.5 µg/ml) . Francesca Bonvicinia et Al study results indicate that constituents From Tinospora cordifolia exhibited a higher inhibitory Activity against reference microbial strains and clinical Isolates of methicillin-resistant Staphylococcus Aureus (MRSA) and carbapenemaseproducing Klebsiella pneumoniae [36]. Constituents From Tinospora cordifolia may be a potential source of New therapeutic strategies for infectious diseases.

Anticancer Activity

Tinospora cordifolia extracts are used in a radioprotective role to increase body weight, and tissue weight to inhibit the harmful effects of sublethal gamma radiations in male Swiss albino mice.

Tinospora cordifolia extracts Rise lipid peroxidation and decrease the level of cell viability, decreasing the level of GSH S-transferase activity (Rao SK et al., 2008). Lipid peroxidation is important and related to cell death and causes the impairment of Membrane function through the increase the membrane permeability and membrane protein oxidation and cell Death.

Polysaccharide fractions from Tinospora cordifolia are effective in reducing the metastatic potential of Melanoma cells. Tinospora cordifolia extracts increased the levels of pro- inflammatory cytokines, including IL1β, IL-6, TNF-

α, granulocyte monocyte-colony stimulating factor and the vascular endothelial cell growth factor To increase the level of tissue inhibitor of metalloprotease-1 in the B 16- F10 extract (Leyon PV et al.,2004). The Effect of Tinospora cordifolia extract is better than doxorubicin treatment (Jagetia GC. Et al., 1998)

Anti-Allergic

Tinospora Cordifolia has been studied for its antiallergic effect. It was found that Cordifolia provided significant relief from sneezing Nasal discharge, nasal obstruction, and nasal Pruritis compared with placebo with consistent Improvement on examination of nasal smears and Nasal mucosa. Tinospora cordifolia has been studied for its anti-allergic effect. It was found that T cordifolia provided significant relief from Sneezing, nasal discharge, nasal obstruction, and Nasal pruritus compared with placebo with Consistent improvements on examination of the Nasal smears and nasal mucosal.

TOXICITY

Amrita extracts have been said to eliminate. Liberated radicals brought on by Aflatoxinosis. Exhibited GSH, ascorbic acid, protein, and antioxidant activity enzymes like SOD, CAT, GPx, glutathione-S- transferase (GST), and glutathione reductase (GR) in the Kidney all have a protective impact.

Thiobarbituric acid reactivity increased substances (TBARS) and GSH are also reduced, alkaloid choline, tinosporin, isocolumbin, palmatine, And Tetrahydropalmatine Amrita shown defence against the production of aflatoxin.(25)Leafy Amrita extract showed hepatoprotective properties for lead nitrate- induced toxicity In male Swiss albino mice. Orally administering prevents lead nitrate from appearing in plant Extracts provoked liverdamage. SOD, CAT, and Increased levels of aspartate Aminotransferase (AST), alanine Aminotransferase (ALT), ALP

Antioxidant activity

In diabetic rats, there was a considerable increase in the Concentration of thiobarbituric acid- reactive compounds (TBARS) in the brain, as well as a decrease in the heart. Treatment with Tinospora cordifolia reduced glutathione Reductase (GSH) concentrations and activity of superoxide Dismutase (SOD), catalase, and glutathione peroxidase (GPx)In diabetic rats' tissues.

T. cordifolia root alcoholic extract (TCREt) given orally to diabetic rats at a dose of 100 mg/kg For 6 weeks restored the antioxidant state of the heart and Brain. Although insulin (6 units/kg) returned all parameters to Normal status, T. cordifolia root extract had a better effect Than glibenclamide (600/kg) (Prince et al., 2004) .The Fenton ($FeSO_4$) reaction and radiation- mediated 2-Deoxyribose degradation were both inhibited by aqueous Extract of T. cordifolia in a dose-dependent manner, with an IC50 value of 700/mL for both Fenton and radiation-mediated 2-DR degradation. Similarly, at 500/mL and higher, it Displayed a moderate but dose-dependent suppression of Chemically produced superoxide anion, with an IC50 value of 2000/mL (Goel et al., 2002) .T. cordifolia has also been Shown to increase GSH levels, gamma-glutamylcysteine Ligase expression, and Cu-Zn SOD gene expression. Electron Paramagnetic resonance spectroscopy revealed that the herb Had high free radical-scavenging properties against reactive Oxygen and nitrogen species (Rawal et al., 2004) Tinospora cordifolia also contains

components that reduce HIV recurrent resistance to antiretroviral therapy (ART) and Increase the medication's outcome. **Immuno-modulatory Activity.**

T. cordifoliais used to improve the immune System and the body resistance against Infections. The alcoholic and aqueous Extracts of T. cordifolia have been tested successfully for immuno- modulatory Activity. Pretreatment with T. cordifoliaReduced mortality in mice injected with E. Coli intraperitoneally. This was associated with significantly improved bacterial Clearance as well as improved phagocytic And intracellular bactericidal capacities of Neutrophils in the T. cordifolia treated Group. According to Desai et al. (2002) the Dry stem crude extract (DSCE) of T. Cordifolia contained a polyclonal B cell Mitogen, G1-4Awhich enhance the immune Response in mice.Treatment of T. cordifolia extract also Deleted the immunosuppressive effect of CCl4.There was significant increment in the Functional capacities of rat peritoneal Macrophages.

Anti-Diabetic Activity.

Pharmacological studies have proven in vivo Antidiabetic potential of various extracts of T. Cordifolia. It has been reported to mediate its antidiabetic potential through myriad of biologically active Phytoconstituents isolated from different parts of plant, Including alkaloids, tannins, cardiac glycosides, Flavanoids, saponins and steroids . These compounds Have been reported to encompass different target Activities in diabetic conditions, thus enabling the Potential application in experimental and clinical Research. Kannadhasan R and Venkataraman S study Reported that 30 days treatment of Sedimental extract of Tinospora cordifolia (SETc) (1000mg/kg/p.o) on Diabetic subjects was proven for its efficacy and clearly Establishes the antidiabetic activity with antiobese body Built . The Ethanolic extract of Tinospora

cordifoliaLeaves in different dosages (200 and 400 mg/kg b.w.) Administered orally for 10 days and 30 days in Streptozotocin diabetic albino rats. It is clearly showed That TC has significant antidiabetic activity in diabetic Animals and has an efficacy of 50% to 70% compared to Insulin Borapetoside C isolated from Tinospora Crispa (5 mg/kg, i.p.) attenuated the elevated plasma Glucose in diabetic mice, increased glucose utilization, Delayed the development of insulin

resistance and then Enhanced insulin sensitivity. The activation of insulininduced IR-Akt-GLUT2 expression in liver and the Enhancement of insulin sensitivity may have Contributed to the hypoglycemic action of borapetoside C. The isoquinoline alkaloid rich fraction from stem,

Including, palmatine, jatrorrhizine, and magnoflorine Have been reported for insulin-mimicking and insulinreleasing effect both in vitro and in vivo . In Ehrlich Ascites tumor cells model, water, ethanol and methanol Extracts of the herb showed glucose uptake-stimulatory Activity. The protective effects of Tinospora Cordifolia root extract were reported in presence of Higher levels of anti-oxidant molecules and enzymes. Tinospora cordifolia root extract has been shown to Significantly counterbalance the diabetes-associated Oxidative stress in the maternal liver by lowering the Levels of malondialdehyde and reactive oxygen species And the increased levels of glutathione and total thiols . Oral treatment of Tinospora cordifolia (100 and 200 mg/kg body weight) for 14 days mediates its antidiabetic potential through mitigating oxidative stress Promoting insulin secretion and also by

inhibiting Gluconeogenesis and glycogenolysis .

Anti-arthritic, anti-osteoporotic effects

Single or synergistic formulations of Tinospora cordifolia with Zingiber officinale has been used in rheumatoid arthritis treatment in traditional medicine. Tinospora cordifolia have been reported to affect the proliferation, differentiation and mineralization of bone like matrix on osteoblast model systems in vitro and hence finds potential application as an anti-osteoporotic agent. Alcoholic extract of Tinospora cordifolia have been shown to stimulate the growth of osteoblasts, increasing the differentiation of cells into osteoblastic lineage and also increasing the mineralization of bone like matrix. Ecdysteroids isolated from the plant have been reported of protein anabolic and anti-osteoporotic effects in mammals. Beta-Ecdysone (Ecd) from Tinospora cordifolia extracts have been reported to induce a significant increase in the thickness of joint cartilage, induce the osteogenic differentiation in mouse mesenchymal stem cells and to relieve osteoporosis in osteoporotic animal models. Further 20- OH-β-Ecd isolated from Tinospora cordifolia has been reported of its anti-osteoporotic effects[62] thus highlighting the role of Tinospora cordifolia in the treatment of osteoporosis and osteoarthritis.

Anti-Anxiety Action

Sarma et al. found that a 100 mg/kg ethanolic extract of T. cordifolia has noteworthy anti- anxiety action in comparison to standard diazepam (2.5 mg/kg) [74]. Patients' I.Q. level demonstrated improved level as per clinical investigation. In Ayurveda preparation of T. cordifolia is used as a brain tonic and thought to work by improving mental abilities such as memory and recall .

Hypolipidemic Effect

In alloxan diabetic rats, Stanely et al. analyzed the hypolipidemic impact of an aqueous extract of the root on rats weighing 2.5 and 5.0 g/kg body weight on the sixth week, which brought about in diminished tissue cholesterol, diminished serum, phospholipids, and free fatty acid. The root extract at a dose of 5.0 g/kg of body weight had the most noteworthy hypolipidaemic impact. T. cordifolia root extract's capacity to lower serum or tissue lipid level in diabetic rats had never been investigated earlier.

Wound Healing Property

The wound healing profile of alcoholic extract of T. cordifolia and its outcome on the wound healing was found suppressed by dexamethasone, as evaluated by Shanbhag T.et al. The injury mending capability of the plant showed expanded elasticity of the extract of T. cordifolia which might be credited to the advancement of collagen combination. The concentrate of T. cordifolia didn't invert dexamethasone stifled injury recuperating.

Anti-hiv action

Some of the research found that the root extract of T. cordifolia affects the immune system of HIV positive patient. It improves the therapeutic results by reducing the recurrent resistance of HIV virus. T. cordifolia extract shows the anti-HIV action by reducing the eosinphil count, stimulating the B lymphocytes, macrophages, and polymorphonuclear leukocytes and hemoglobin percentage, hence disclosing its auspicious role of application in the management of the disease.

COVID-19

Rais et al. stated that management of mild COVID-19 infection is possible with the use of T. cordifolia. COVID-19 is a recent occurred pandemic highlighted the importance of Gurjo in medicinal field. According to Ayurved and Yog Guru Baba Ramdev, Consuming the T. cordifolia along with ginger, tulsi, pepper, and turmeric will help in boosting immune system and prevents the corona virus.] One study has stated that T. cordifolia is crucial in thepreventionattachment of virus to the host cells.

Detection of total alkaloids

Plant extract was dissolved in mild HCl , filtered and the filterate was tested for alkaloids. The alkaloids test was performed by various test like Mayer's test, Wagner's test, Dragendorff's test, Hager's test.

Detection of flavonoids -

The extract was treated with few drops of sodium hydroxide solution. It initially produce a deep yellow colour which become colourless when dilute acid is added to it , this colour change represents presence of flavonoid.

Detection of glycosides -

Plant extracts were hydrolysed with dilute hydrochloric acid and then was tested for glycocides by different test like modified Borntrager's test and legal's test.

Detection of phenol -

Plant extract were treated with a few drops of ferric chloride solution. Bluish colour formation indicates the presence of phenols. Detection of saponinFor the saponin identification the Froth test was done. Plant extract were diluted with distilled water to 20 ml and were shaken for 10-15 min. Formation of foam of height of 1 cm represent the presence of saponin.

Fig:2 phytochemical constituent present in Tinospora cordifolia

Cordifolia Elixirs can be prepared more easily than syrups they contain less amount of ingredients that are to be dissolved. If water soluble and alcohol soluble ingredients are present in formulation then the following procedure is followed. All the water soluble ingredients are added to water and dissolved. Now sucrose should be mixed and let it dissolve completely all the alcohol soluble ingredients were taken and dissolved in alcohol. Then the first solution was added to second solution. To make the elixir clear it is filtered. The final volume is made up with water. Sucrose will enhance the viscosity and reduces the solubility of water. To make the elixir clear which is compulsory, talc or siliceous earth are used. Syrup is the best choice when taste is the main consideration. To make use of reliable, safer and economical natural coloring agents in the preparation of pediatric paracetamol elixir and compare it with the marketed product to evaluate the stability of the color used. Stablity of colour used.

Organoleptic Properties –

The Extract from TinosporaCordifolia was evaluated for its organolcptic properties such as appearance, colour and odour.

Excipients study:

Sr.no	**Ingredient**	**Uses**
1.	Extract of Tinospora cordifollia	Phytocostituent
2.	Orange sprit	Falvouring agent
3.	Etanol	Solublizer
4.	Sucrose	Sweeting agent
5.	Amaranth red	Colouring agent
6.	Propyle paraben	Preservative
7.	Talc	Antiturbident
8.	Propyene glycol	Vehical

Method of preparation of Elixir –

The all ingradients was weighed accurately.

The two beaker was taken

In first beaker the extract of Tinospora Cordifolia was taken with orange spirit.

Talc was added to remove turbidity from beaker one.

In another beaker the sucrose , propyl paraben , and amaranth red was added in ethanol.

Two beaker was mixed together.

Lastly by using vehicle propylene glycol volume was makeup upto 40ml.

Fig: 3 Formulation of elixir

Evaluation of Elixir Formulation

Determination of pH–

pH of formulation was determined by using pH paper. The paper was dipped in formulation and this process was repeated 3 times.

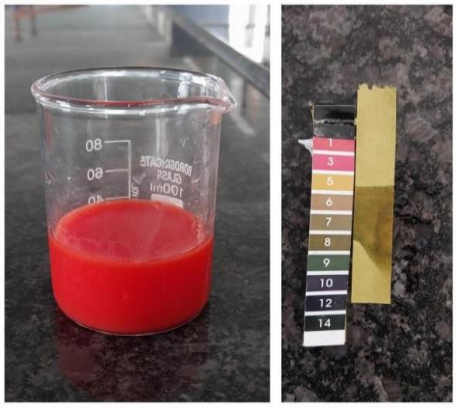


Fig:4 PH determination Measurement of viscosity

The viscosity of batch was determine using Oswald viscometer..

Fig. 5 Oswald Viscometer

Density

Density of a substances is its mass per unit volumeDensity of Elixir was determined by using specific gravity bottle. The Density was calculated by specific gravity formula.

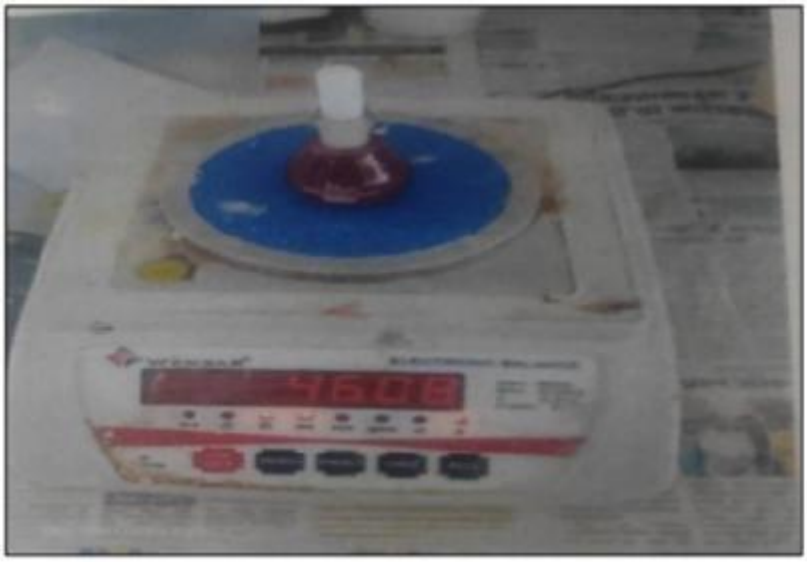


Fig: 6 specific gravity bottle gravity formula.

Physical stability

The physical stability was determined by using UV spectrophotometer. Physical stability of Elixir was evaluated by using UV spectrophotometer.

Refractive index :

Physicalctive index (index of Refraction) is a value calculated from the ratio of the speed of light in a vacuum to that in a second medium of greater density. Refractive index of elixir was evaluated by using Abbes refractometers refractive index repeated 3times.

Organoleptic properties –

The Colour, odour and Consistency, appearance was determined by organoleptic characters.

The organoleptic characters of elixir was evaluated.

Result and Discussion –

Organoleptic properties –

Tinospora cordifolia was studied for its organoleptic such as Appearance, Colour , Odour. The result shoes the detailed of organoleptic properties of Tinosporacordifolia was found to be similar as per literature.

Sr.no	Properties	Observed result
1.	Appearance	Crystalline powder
2.	Colour	Red
3.	Odour	Slightly odour

Table no: 1 oraganoleptic properties of Tinospora cordifollia

Evaluation of Elixir –

Determination of Ph – pH of various elixir in following table which found to be range of 6. Ph of elixir indicates the suitability of elixir for oral use.

Sr.no	Formulation	Ph
1.	**F1**	**6**

Table No.2 - pH observation.

Measurement of Viscosity- The viscosity was found to be and states that it is more viscous than water and less viscous than syrup

Sr.no	Formulation	Vicostiy
1.	**F1**	**0.0536**

Physical stability – The physical stability was determined by using UV spectrophotometer. Physical stability of Elixir was evaluated by using UV spectrophotometer the peak was observed by UV and it shows similar wavelength and peak i.e 277.5 nm which shows Elixir is stable .

Sr.no	Wave length	Absorbance
F1	**277**	**-0.021**

Table: 3 observation for physical stablity

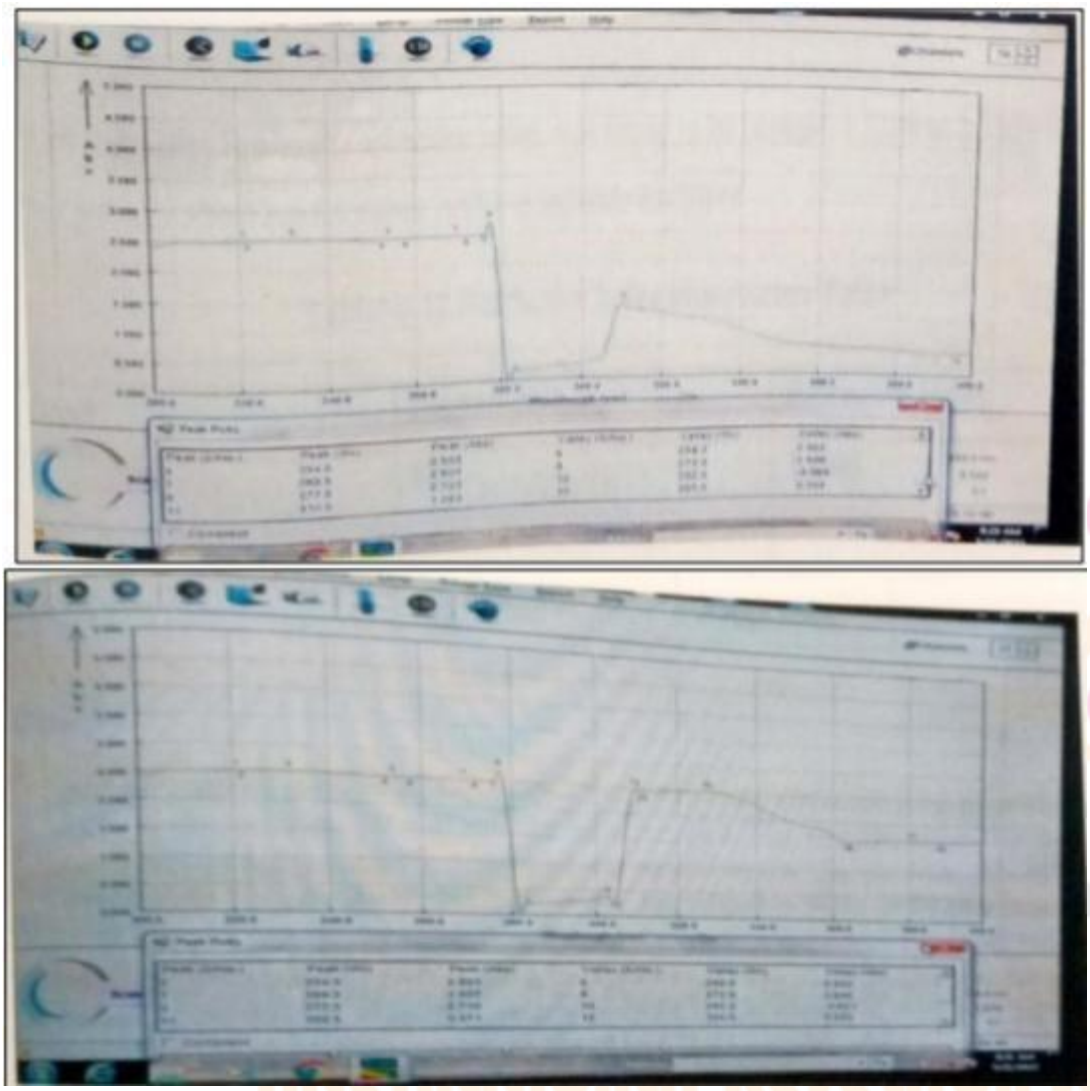


Fig: 7 graph of uv spectrometer

Organoleptic properties- Organoleptic properties was evaluated and its Appeareance, Odour and consistency suitable for Elixir.

Table : 4 organoleptic properties

Sr no	Formulation	Colour	Odour	Costitency
1.	F1	Red	Orange smell	Liquid

Discussion –

The above results states that the formulation batch Fl is very useful and good according to its results. In this batch the pH was suitable for Elixir i.e 6. The viscosity states that it is less viscous than syrup. The density is 0.015 g/ml was suitable to Elixir. The physical stability results shows that the formulation is physically stable. The refractive index of Fl was found to be 1.3308 it is good for Elixir preparation .The organoleptic properties of Fl shows red colour and orange smell dour .which is good for appearance and doorpost. The formulation consist of more amount of propyl paraben so there is less chance of microbial growth and also consist low amount of sugar other than and B formulation which is good for diabetic patients. Hence above discussion states that Fl is suitable Elixir for oral use.

Conclusion

The filtrate from Tinospora Cordifolia steam formulation may be useful for fever.

- In the present research, an attempt has been made on the formulation and evaluate Elixir, for Oral purpose.
- Compatibility studies between exicipients and extracts will be helpful in optimizing the formulation.

Future Scope –

The Elixir preparation of Tinospora Cordifolia may used in future for treatment of fever. This preparation increase the scope of semisynthetic drug in Global market.

- In future various preparation of Tinospora Cordifolia was formulated and evaluated due to its various medicinal use.
- The Tinospora Cordifolia use for various activity such as Antipyretic, Antiinflammantory, Antioxidant etc.

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